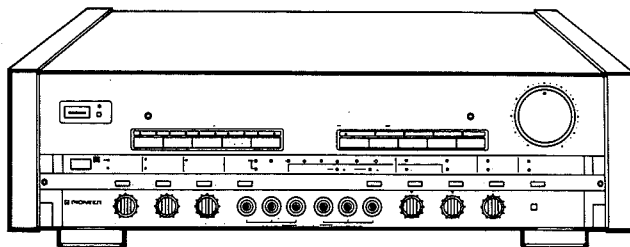


Operating Instructions

STEREO CONTROL AMPLIFIER C-900



These operating instructions are for C-900 and C-90, which are identical in content.

Thank you for buying this Pioneer product. Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference. In some countries or regions, the shape of the power plug and power outlet may sometimes differ from that shown in the explanatory drawings. However, the method of connecting and operating the unit is the same.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT NOTICE

[For U.S. and Canadian models]

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep it in a secure area. This is for your security.

[For Canadian model]

CAUTION: TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

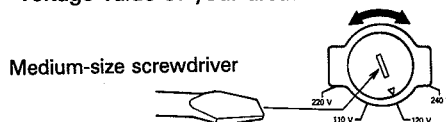
ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

LINE VOLTAGE SELECTOR SWITCH

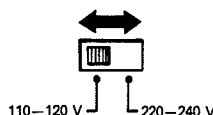
Only multi-voltage models are provided with this switch. U.S., Canadian, European, U.K., and Australian models are not provided with this switch.

The line voltage selector switch is on the rear panel. Before your model is shipped from the factory, this switch is set to the power requirements of the destination. Check that it is set properly before plugging the power cord into the AC outlet. If the voltage is not properly set or if you move to an area where the voltage requirements differ, adjust the selector switch as follows.

1. Use a medium-size screwdriver.
2. Insert the screwdriver into the groove on the voltage selector, and adjust so that the tip of the arrow points to the voltage value of your area.



3. Set the voltage selector switch for the voltage in your area.



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PIONEER®

SAFETY INSTRUCTIONS

READ INSTRUCTIONS — All the safety and operating instructions should be read before the appliance is operated.

RETAIN INSTRUCTIONS — The operating instructions should be retained for future reference.

HEED WARNING — All warnings on the appliance and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.

WATER AND MOISTURE — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

LOCATION — The appliance should be installed in a stable location.

WALL OR CEILING MOUNTING — The appliance should not be mounted to a wall or ceiling.

VENTILATION — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

HEAT — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

POWER SOURCES — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

POLARIZATION — If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

CLEANING — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzene, insecticides or other volatile liquids since they may corrode the cabinet.

POWER LINES — An outdoor antenna should be located away from power lines.

NONUSE PERIODS — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

OBJECT AND LIQUID ENTRY — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

DAMAGE REQUIRING SERVICE — The appliance should be serviced by Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

SERVICING — The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.

OUTDOOR ANTENNA GROUNDING — If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.

In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

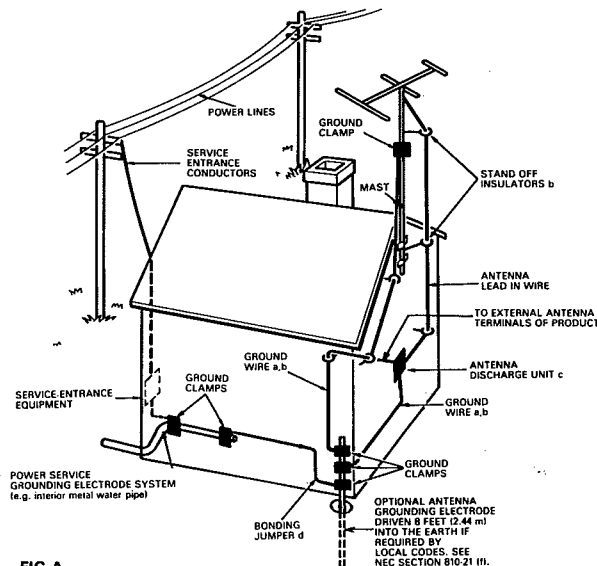


FIG. A

- Use No. 10 AWG (5.3 mm²) copper, No. 8 AWG (8.4 mm²) aluminum, No. 17 AWG (1.0 mm²) copper-clad steel, bronze wire, or larger as ground wire.
- Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
- Mount antenna discharge unit as closely as possible to where lead-in enters house.
- Use jumper wire not smaller than No. 6 AWG (13.3 mm²) copper or equivalent when separate antenna-grounding electrode is used.

IMPORTANT 1



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT 2

If the apparatus is fitted with AC mains power outlet(s), see REAR PANEL FACILITIES for convenient connection of additional Hi-Fi component(s). Make all connections to the AC outlet(s) and the signal terminals first. Connect the plug to the wall socket last, make sure that the power switch is off. Disconnect the wall plug when the equipment is not in (regular) use, e.g. when on vacation.

FOR USE IN THE UNITED KINGDOM

The wires in this mains lead are coloured in accordance with the following code:

Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Equipment sold in the U.K. is not supplied with a power plug.

FEATURES

Mono-Construction

Independent power transformers are provided for left and right channels, with an additional transformer for control and display functions. This three-transformer design prevents deterioration of sound due to interference between channels.

Hybrid MC Transformer

The MC transformer winding ratio has been reduced (1/2 of previous Pioneer models), thus improving low-frequency and high-frequency MC transformer response.

Vibration-resistant design

In order to eliminate sound deterioration from vibration, the amplifier's supporting legs have been made from special resin material, and pure aluminum has been used for the volume control knob.

Electronic Control

Signal switching is performed by relays and electronic switches in order to shorten the signal path, thus reducing noise and improving separation and other characteristics.

High-sound-quality Motor Drive Volume Control

Volume control is performed by motor drive, thus reducing distortion.

High-Fidelity Parts

All parts, from circuit boards to resistors, capacitors, semiconductors, and wiring, have been specially developed for high-fidelity audio applications. In addition, a copper-plated chassis has also been adopted for even greater sound quality.

Full Video Functions

In addition to five (plus one adapter) audio inputs, five (plus one adapter) video input terminals have also been provided. In addition, a REC selector and enhancer function have also been built into the video system.

Remote Control

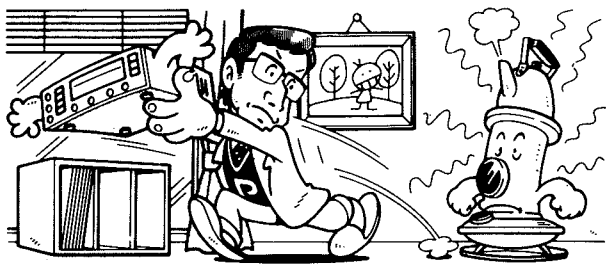
In addition to making the unit easier to use, the remote control function can be used for remote system control when the amplifier is used in conjunction with other Pioneer components bearing the  mark.

PRECAUTIONS DURING USE

About Installation

Avoid high temperature and humidity, and allow sufficient ventilation.

Excessive heat can adversely affect internal parts. Avoid locations exposed to direct sunlight or the heat from a space heater or other heating appliance. Also, malfunctions may result if the unit is installed in locations with high-humidity or high concentrations of dust. (Also avoid kitchen installations or other locations exposed to oily smoke, steam, or heat.)



Precautions for installation

To ensure optimum sound quality, observe the following precautions:

- This unit is heavy. Be sure to install it on a firm base which can support its weight. Also, to prevent the flow of cooling air from being blocked off, do not place the unit on soft material such as a carpet or cushion, or install it in a confined space. When installing the unit in a rack, provide adequate space around it to allow heat to dissipate.
- To prevent the control amplifier from picking up noise due to leakage flux from the power amplifier when the control amplifier and power amplifier are installed adjacent to each other, install the control amplifier on the right of the power amplifier. Also, if you install the control amplifier above or below the power amplifier, place a partition between them to separate them by at least 10 cm from each other.
- Install the unit on a level surface so that the feet of the unit are all touching the installation surface.

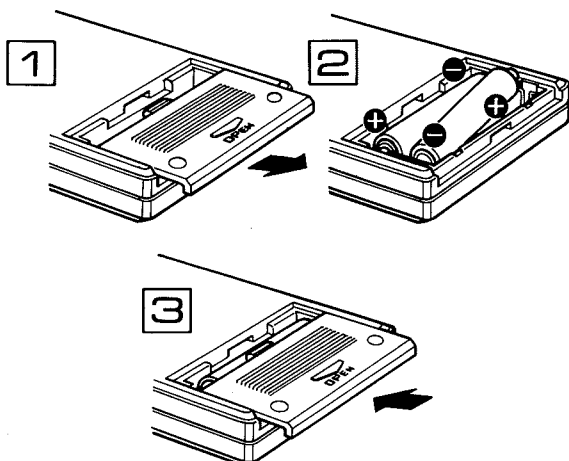
PREPARATIONS

Check for all parts and accessories

Remote control unit
Batteries (R03/UM-4) x 2
Pin-plug cord

Insert batteries in the remote control unit

1. Open the battery compartment lid on the rear of the remote control unit. (Press the lid and slide in the direction of the arrow.)
2. Insert the two accessory batteries (R03/UM-4) into the battery compartment in accordance with the illustration inside the compartment.
3. Replace the battery compartment lid.



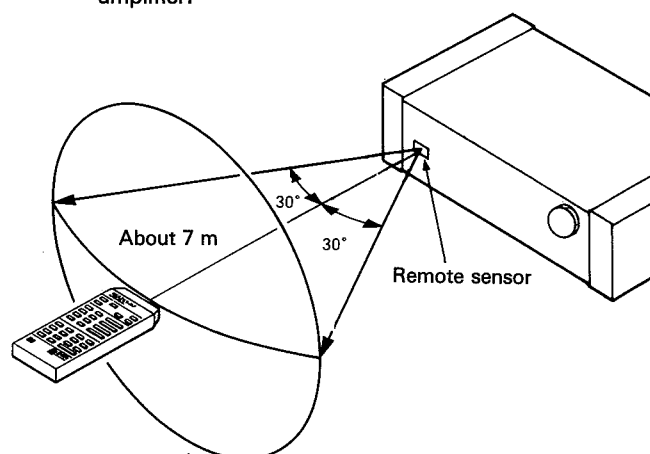
If batteries are used incorrectly, dangerous leakage or rupture can result. Take particular note of the following precautions:

1. Be sure to insert the batteries into the compartment with the positive $\oplus$ and minus $\ominus$ terminals aligned correctly as shown in the compartment.
2. Do not use new and old batteries together.
3. Even batteries of the same size may differ in voltage depending on model. Do not mix batteries of different models together.
4. Batteries are available in rechargeable and non-rechargeable types. Be sure to use your batteries in accordance with the safety notes displayed on their sides.
5. Dispose of used batteries properly in non-burnable garbage.

Usable Range

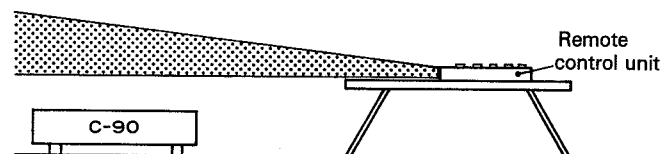
Distance: Within about 7 meters from the front of the amplifier.

Angle: Within about 30° from the perpendicular front of the amplifier.



NOTE:

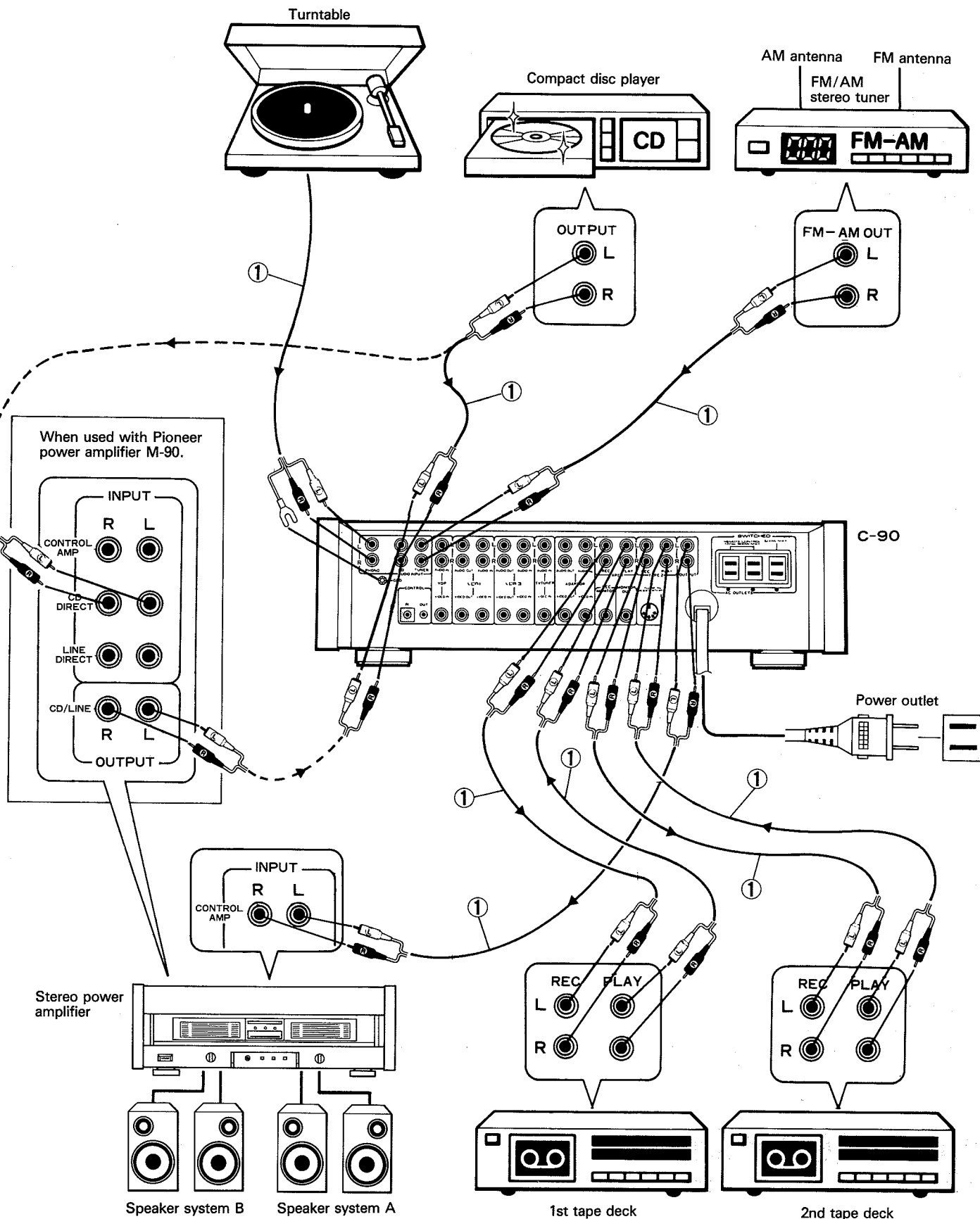
- If a plug is inserted into the rear panel remote control terminal, the remote control unit cannot be used directly with the amplifier's remote sensor.
- If furniture or other objects are located between the remote control unit and the amplifier's remote sensor, or if the remote control unit is used at an excessive angle with the amplifier, the signal may fail to reach the sensor. This condition may particularly occur in cases like that noted below.



- If this amplifier is used near other appliances utilizing infrared rays, or if other infrared remote controllers are used near the amplifier, malfunctions may result. On the other hand, if this remote control unit is used near other components controlled by infrared remote controllers, those other components may malfunction.
- If the operating range of the remote control unit becomes noticeably reduced, replace the batteries.
- When not using the remote control unit for extended periods of time (one month or more), remove the batteries to prevent any possibility of damage from battery leakage. If battery leakage should occur, wipe up the spilled fluid inside the battery case and insert new batteries.

CONNECTIONS

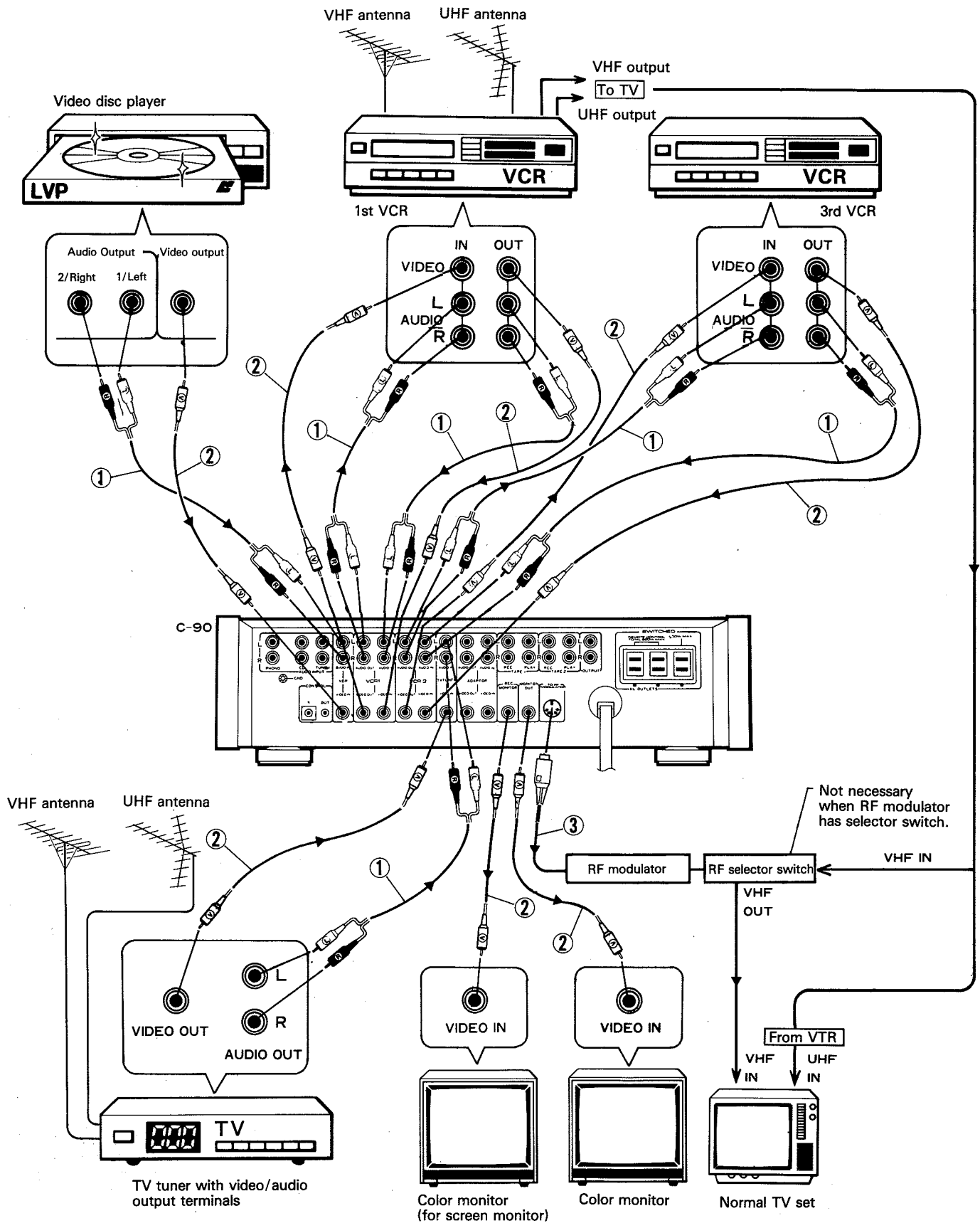
AUDIO COMPONENT CONNECTIONS



CONNECTIONS

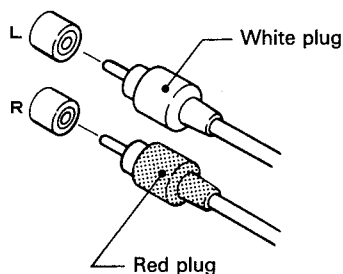
VIDEO COMPONENT CONNECTIONS

* Terminals for a second VCR unit are located inside the front panel door.



■ Connecting Audio Input/Output Cords (see ① in connection diagrams)

- Use the red/white pin-plug cords.
- Connect the white plug to the L (left) channel and the red plug to the R (right) channel. Be sure to insert the plugs into the terminals fully.

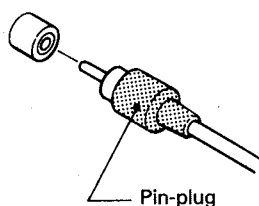


NOTES:

- Short pin plugs (14 in all) are fitted to each of the AUDIO IN terminals for PHONO, CD, TUNER, VDP, VCR1, VCR3, and TV TUNER to improve sound quality. Remove these when making connections.
- Keep short pin plugs in a safe place. Do not insert in the REC, AUDIO OUT or VIDEO IN, OUT terminals.
- Replace short pin plugs in the terminals from which have they were removed when the terminal becomes vacant.

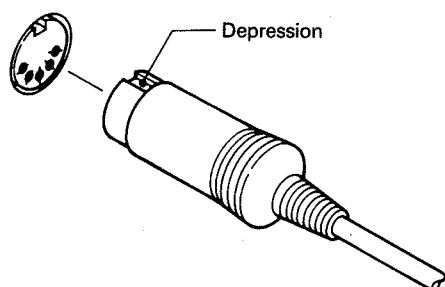
■ Connecting Video Input/Output Cords (see ② in the connection diagrams)

- Use pin-plug cords.
- Be sure to insert the plugs into the terminals fully.



■ Connecting an RF Modulator (see ③ in the connection diagrams)

- Use an RF modulator designed for use with MSX personal computers.
- Use a cord with 5-pin DIN plug.
- Align the depression on the plug with the guide on the terminal and insert securely.



■ About the polarity of auxiliary AC power outlets:

The auxiliary power outlets on this unit have marks indicating the polarity of the outlet. When connecting other stereo components, if those components have been designed with specific power polarity, be sure to connect the power cords in accordance with the manufacturer's instructions in order to achieve better sound quality. The negative (ground) side of the rear panel outlets are indicated by a dot mark (•).

PANEL FACILITIES

FRONT PANEL

VIDEO INPUT selector switch/indicator

Use to select the video component for playback.

- [VDP]— To play back the video disc player connected to the rear panel VDP terminals.
- [VCR 1]— To play back the VCR connected to the rear panel VCR 1 terminals.
- [VCR 2]— To play back the VCR connected to the front panel VCR 2 terminals.
- [VCR 3]— To play back the VCR connected to the rear panel VCR 3 terminals.
- [TV tuner]—To use the TV tuner connected to the rear panel TV TUNER terminals.

The red indicators light during audio playback, while the green indicators light during video playback. This switch is interlocked with the AUDIO INPUT selector.

MAIN POWER switch

STAND-BY switch/indicator

- When the power switch is in the ON position, power can be turned ON/OFF to the amplifier and to the rear panel REMOTE CONTROL power outlets.
- Power is turned ON/OFF alternately with each press of the switch; when in the OFF (stand-by) position, the indicator will light (when in the ON position, the indicator will flash, then go out).
- The accessory remote control unit can be used to turn this switch ON/OFF, with the result that the remote control unit can be used from the listening position to control power not only to the amplifier, but also to those components connected to the rear panel REMOTE CONTROL power outlets.
- When not using the amplifier for an extended period of time, be sure to set the main power switch to the OFF position.

REMOTE SENSOR/indicator

AUDIO ADAPTOR switch/indicator

Normally leave in the OFF position.

Set to ON when using the audio adaptor component connected to the rear panel adaptor terminals AUDIO IN/OUT (indicator lights).

REC SELECTOR switch/indicator

Use to select the playback source component used when performing audio and video recording on VCR's 1, 2, and 3. The audio and video signals (in the case of a video component), or audio signals (in the case of an audio component) from the selected component will be output from the VCR 1,2,3 REC terminals. When set to SOURCE, the signals selected with the audio or video input selector switch will be output.

When performing video recording, the built-in enhancer function can be used to enhance the quality of the recorded video signals (see the instructions regarding the enhancer switch and picture enhancement). The enhanced picture can be monitored on the color monitor connected to the rear panel REC MONITOR terminal.

NOTE:

No signal is output to the REC terminal of the input component selected with the recording selector switch. For example, when REC SELECTOR is used to select VCR 1, no signal will be output to the REC terminal of VCR 1.

VIDEO ADAPTOR switch/indicator

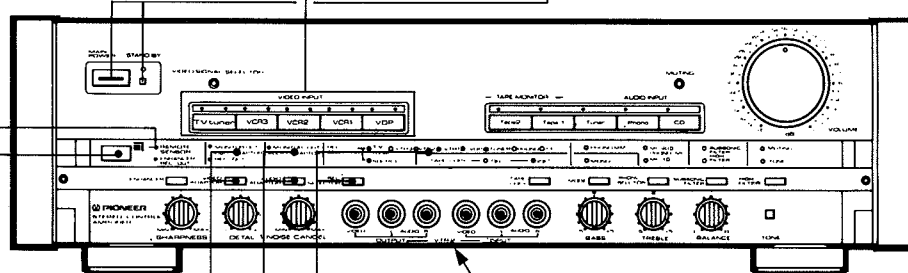
Set to the ON position when using the component connected to the rear panel ADAPTOR terminals VIDEO IN and OUT.

MONITOR OUT lights:

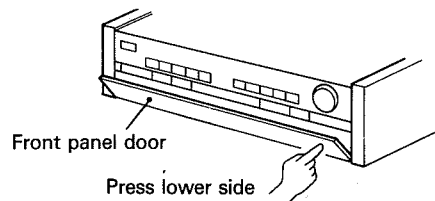
The image enhanced with the adaptor component can be played back on the color monitor or TV connected to the MONITOR OUT terminal or RF MODULATOR terminal.

REC OUT lights:

The image enhanced with the adaptor component can be played back on the color monitor connected to the REC MONITOR terminal or the VIDEO OUT terminal of VCR 1—3.



To open front panel door



VIDEO SIGNAL SELECTOR switch

Use to switch the video component's video signal regardless of the position of the input selector switch. The video indicators (green) above the input selector switch will light in order.

Even when listening to an audio component (record player, tuner, etc.), this switch can be used to perform video recording and playback while continuing to listen to the audio component playback.

BALANCE control

Normally leave in the center position. Use to adjust the balance of sound from right and left channels.

AUDIO INPUT selector switch/indicator.

Use to select the audio component for playback (the indicator will light).

[CD]: For compact disc player.

[Phono]: For turntable.

[Tuner]: For listening to FM/AM broadcasts with a tuner.

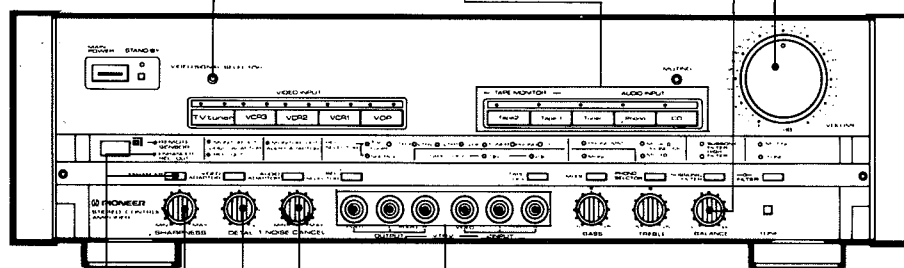
[Tape 1]: To use the tape deck connected to the rear panel Tape 1 terminals.

[Tape 2]: To use the tape deck connected to the rear panel Tape 2 terminals.

The Tape 1 and Tape 2 switches go ON or OFF alternately each time they are pressed, independently of the other switches.

VOLUME control

Use to adjust the sound volume. At the [∞] position, sound will not be heard, while at the [0] position, sound volume will be at its maximum.



ENHANCER switch/indicator

When performing VCR recording, the built-in enhancer allows you to compensate the recorded picture quality. Press the switch so that the indicator lights, then adjust the image quality using the video compensation controls.

VCR 2 front panel terminals

Use to connect a second video cassette recorder.

[INPUT]

VIDEO: For video input (connect to VCR's video output terminal).

AUDIO: For audio input (connect to VCR's audio output terminals).

[OUTPUT]

VIDEO: For video output (connect to VCR's video input terminals).

AUDIO: For audio output (connect to VCR's input terminals).

Video compensation controls

Use these compensation controls after pressing the ENHANCER switch so that the indicator lights.

[SHARPNESS]: Use to sharpen hazy image contours.

[DETAIL]: Use to compensate for flat image detail.

[NOISE CANCEL]: Use to reduce noticeable video noise.

The video image compensated with these controls can be viewed on a TV monitor connected to the rear panel REC MONITOR or MONITOR OUT terminals.

NOTE:

- When using the video compensation controls, perform compensation based on the quality of the playback image. If too much compensation is applied, black and white stripes may appear in contour areas. As a result, the image should be adjusted to the optimum quality while viewing the results on a color TV monitor connected.
- To view the enhanced image on the color monitor connected to the MONITOR OUT terminal, select the playback source with the recording selector switch, and use the video input selector switch to select the component being used for video recording.

PANEL FACILITIES

TAPE COPY switch/indicator

Use when performing tape copying between the tape decks connected to the TAPE 1, and TAPE 2 terminals.

1►2: To copy the Tape 1 playback onto Tape 2.

2►1: To copy the Tape 2 playback onto Tape 1.

MODE selector switch

Use to select the stereo or monaural audio playback mode.

Normally, this switch is not used.

When the monaural playback mode is selected, press this switch; the MODE MONO indicator will light.

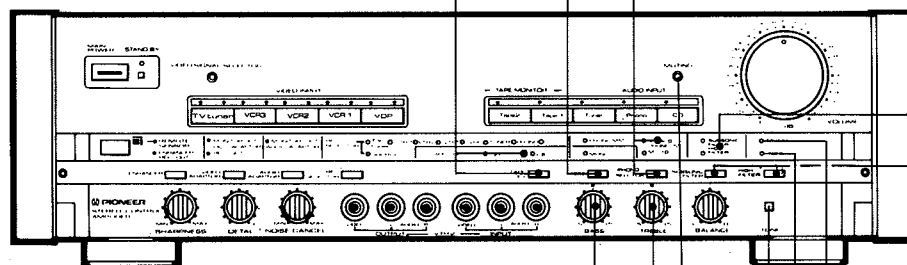
Cartridge selector switch/indicator (PHONO SELECTOR):

Set in accordance with the type of cartridge used on your record player (the corresponding indicator will light).

[MM] — Set here when using a moving magnet cartridge, or a high-output (1mV or more) moving coil (MC) cartridge.

[MC 40 Ω] — Set here when using a moving coil cartridge with impedance of 40 ohms.

[MC 3 Ω] — Set here when using a MC cartridge with impedance of 3 ohms.



TONE switch/indicator

[ON] — The TONE indicator lights, and audio inputs from all components are played back after passing through the tone control circuits. In this condition, the tone controls (BASS, TREBLE) can be used to adjust sound quality.

[OFF] — The TONE indicator goes out, and signals are played back without passing through the tone control circuits.

Tone controls

These controls can be used only when the TONE indicator is lighted.

[BASS] — Use to adjust low frequency sounds. The central [0] indicates the standard (flat) position. When the control is rotated to the right, low-frequency sounds are augmented; when rotated to the left, low-frequency sounds are attenuated.

[TREBLE] — Use to adjust high-frequency sounds. The central [0] indicates the standard (flat) position. When the control is rotated to the right, high-frequency sounds are augmented; when rotated to the left, high-frequency sounds are attenuated.

MUTING switch/indicator

Use to temporarily reduce the sound volume to 1/10th normal. The muting function is on when the MUTING indicator lights. Press the switch again to turn the muting function off and return the sound volume to the normal level.

SUBSONIC FILTER switch/indicator

When the switch is pressed to the ON position, the indicator lights and the subsonic filter acts to cut out all frequencies below 7 Hz.

HIGH FILTER switch/indicator

When the switch is pressed to the ON position, the indicator lights and the high-cut filter acts to eliminate all frequencies above 10 kHz.

REMOTE CONTROL UNIT

Keys other than those for the amplifier are used only when other Pioneer components bearing the **SR** mark are used. Some components, however, may not have remote control functions. For details, consult the operating instructions of the component concerned.

AUDIO VIDEO SELECTOR switch

When using the TUNER/TV key, CD/VDP key, and TAPE/VCR key, use this switch to select the desired component.

[A] —When using a tuner, CD player, or tape deck.

[V] —When using a TV set, video disc player, or VCR.

POWER key

Use to control the amplifier's stand-by switch, and power to those components connected to the rear panel **CONTROL SWITCHED** outlets.

TUNER key

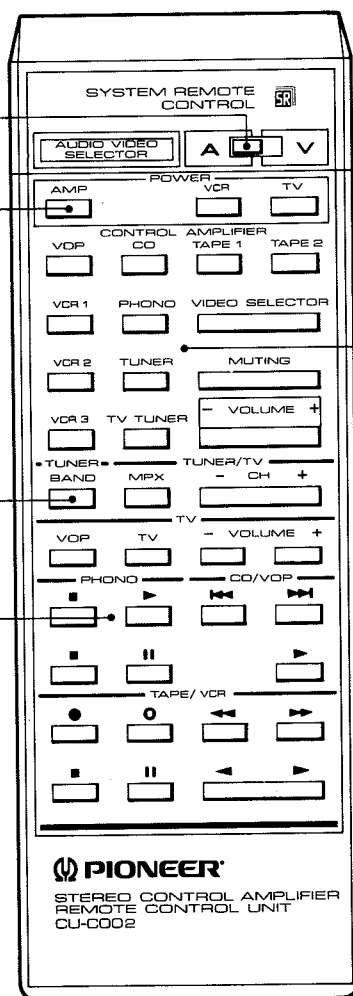
Use to select **BAND**.

PHONO key

Use to control record player operations.

▶: Play key

■: Stop key

**AMPLIFIER CONTROL keys**

[CD]: Compact disc player

[PHONO]: Turntable.

[TUNER]: AM/FM broadcasts.

[TAPE 1]: Tape deck connected to the Tape 1 terminals.

[TAPE 2]: Tape deck connected to the Tape 2 terminals.

[VDP]: Video disc player.

[VCR 1]: VCR connected to the VCR 1 terminals.

[VCR 2]: VCR connected to the VCR 2 terminals.

[VCR 3]: VCR connected to the VCR 3 terminals.

[TV TUNER]: Television tuner connected to TV TUNER terminals.

VIDEO SELECTOR:

Video signal selector

Use to switch the video component picture regardless of the position of the input selector switch.

MUTING: Muting key.

Use to temporarily reduce sound volume.

VOLUME: Sound volume key

Press the "+" side to increase volume, and the "-" side to reduce volume.

The Tape 1 and Tape 2 switches go ON or OFF alternately each time they are pressed, independently of the other switches.

TV keys

VDP: VDP input selector key.

Sets the component display's input selector to VDP.

TV: TV broadcast selector key.

Sets the component display to the TV broadcast reception mode.

VOLUME: Sound volume control key.

Use to adjust the sound volume of the component display. When the "+" side is pressed, sound volume is increased. When the "-" side is pressed, sound volume is decreased.

TAPE/VCR keys

- ◀ ▶: Play key
- ▶ side: Forward play
- ◀ side: Reverse play (operates only with tape decks equipped with reverse play function).
- : Stop key
- ■: Pause key
- ▶ ▶: Tape fast forward (FF) key
- ◀ ◀: Tape rewind (REW) key
- : Recording (REC) key
- : Recording muting (REC MUTE) key (for details see the operating instructions for the tape deck used. Does not function with VCR recording.

POWER key

Use to control power to VCR or TV bearing the Pioneer SR mark.

VCR: Turns VCR power ON/OFF.

TV: Turns component display power ON/OFF.

TUNER/TV keys

MPX: Multiplex key.

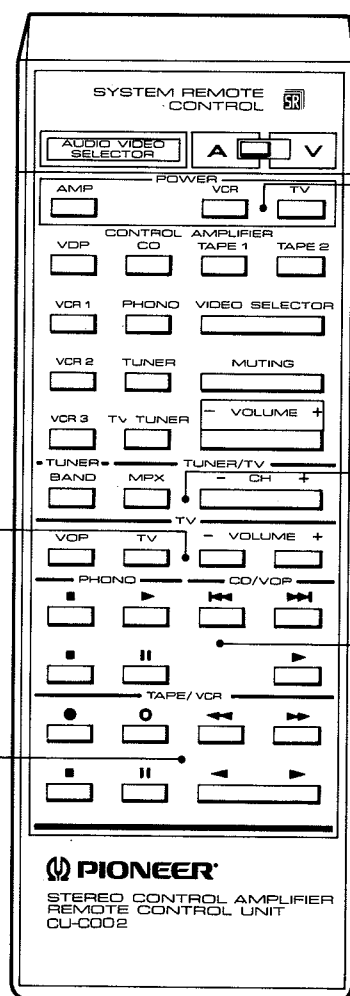
Use to select the sub-channel during multiplex broadcasts.

-CH+: Channel key.

Use to select channels on a TV or the preset channels on the TV tuner. When the "+" side is pressed, channel numbers are selected in ascending order; when the "-" side is pressed, channels are selected in descending order.

CD/VDP keys

- ▶: Play key
- : Stop key
- ■: Pause key
- ▶ ▶: Forward direction track search key for CD, or VDP forward key.
- ◀ ◀: Reverse direction track search key for CD, or VDP reverse key.



REAR PANEL

Audio components terminals

[PHONO]—Turntable.

[CD]—Compact disc player.

[TUNER]—FM AM Tuner

[TAPE 1]—Tape deck 1 (first deck).

PLAY: For playback (connect to the tape deck's PLAY terminals).

REC: For recording (connect to the tape deck's REC terminals).

[TAPE 2]—Tape deck 2 (second deck).

Video components terminals

Connect to the video and audio terminals of the video components you plan to use.

[VDP]—Video disc player.

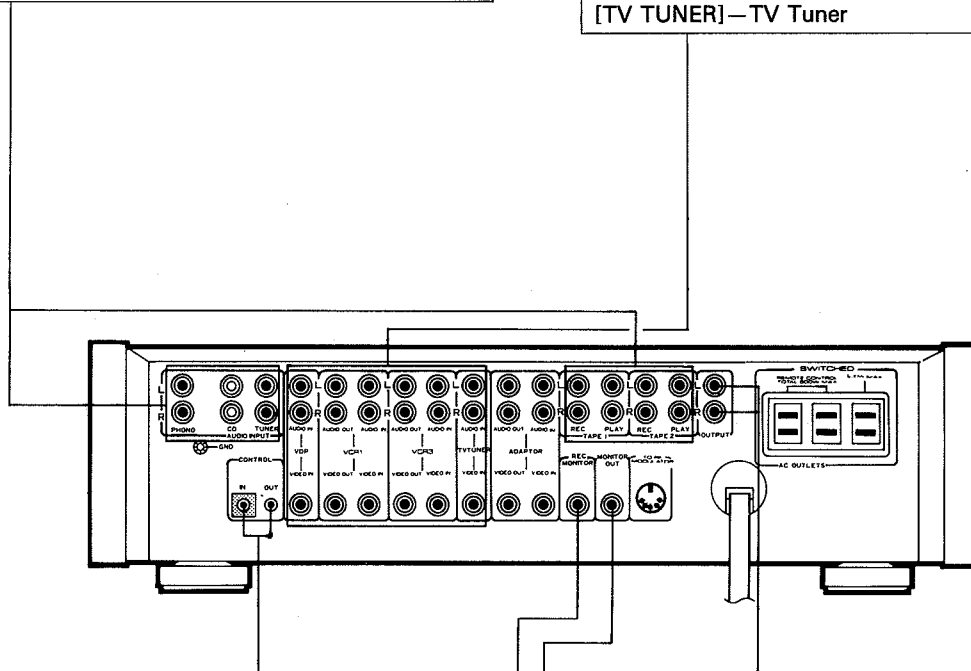
[VCR 1]—Video cassette recorder 1 (first unit).

IN terminals: For input. Connect to the VCR's video and audio output terminals.

OUT terminals: For output. Connect to the VCR's video and audio input terminals.

[VCR 3]—Video cassette recorder 3 (third unit).

[TV TUNER]—TV Tuner

**CONTROL terminals**

IN: Use a control cord to connect when performing remote operations using this unit's remote control unit in conjunction with the remote sensor on the Pioneer component display.

OUT: The control signal received at the amplifier's signal sensor from the remote control unit is output here to other components. Use a control cord to connect to other components when controlling those components with this remote control unit.

NOTE:

Control connections can be performed only when using Pioneer components bearing the SR mark.

OUTPUT terminals

Connect to the control amplifier (pre-amplifier) inputs of the power amplifier (main amp).

REC MONITOR terminal

This video output terminals may be used to view the condition of image compensation as performed with the built-in enhancer. Connect to a color monitor or a television set equipped with video terminal. In this way you can monitor the condition of recording in progress on your video cassette recorder.

MONITOR OUT terminal

This terminal outputs the video playback picture from the video components connected to this unit. Connect to the video input terminal of a color monitor or television set.

PANEL FACILITIES

ADAPTOR IN, OUT terminals

Use to connect a video adaptor component (color corrector, enhancer, etc.), personal computer, or PCM processor.

Alternately, an audio adaptor component such as a sound processor, or graphic equalizer may also be connected.

Ground (GND) terminal

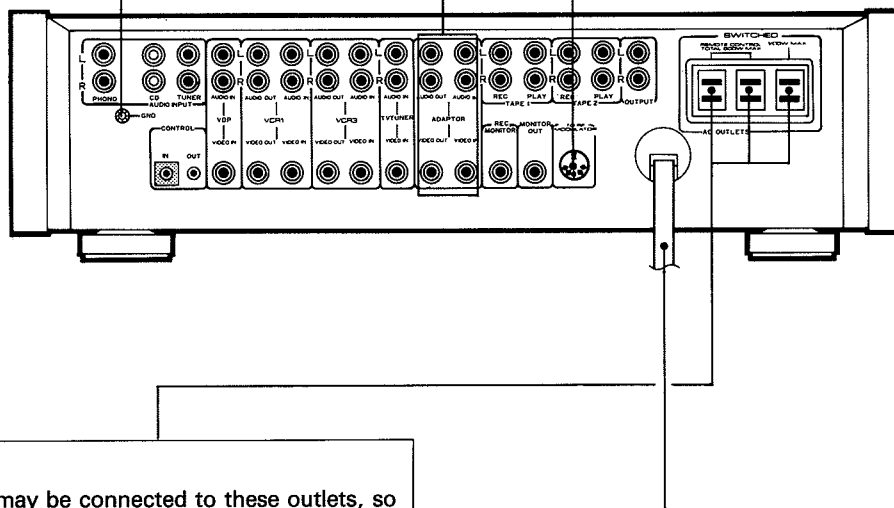
Connect to the ground terminal of your turntable.

RF modulator terminal (TO RF MODULATOR)

The video playback signal from the video components connected to this unit are output here, thus allowing the playback to be viewed on a television set. When using a normal television set not equipped with video input terminal, connect this terminal to the terminal of an RF modulator (available commercially), and connect the RF modulator to the television set.

NOTE:

The television set connected to the RF MODULATOR terminal will play back only the video image, with the result that sound must be played back using the stereo control amplifier. When using the television set alone, use an RF selector switch (available commercially), and connect the television antenna directly to the television set.



AC OUTLETS

Other components may be connected to these outlets, so long as their combined power consumption does not exceed the limits noted on the panel.

[REMOTE CONTROL (SWITCHED) TOTAL 500 W MAX]

Power to the components connected to these outlets can be controlled by the amplifier's stand-by key, or by the POWER key on the remote control unit.

Do not connect components with combined power consumption exceeding 500 W.

[500 W MAX]

Power to the component connected to this outlet is controlled by the amplifier's POWER switch.

Do not connect any component with power consumption exceeding 500 W.

Power cord:

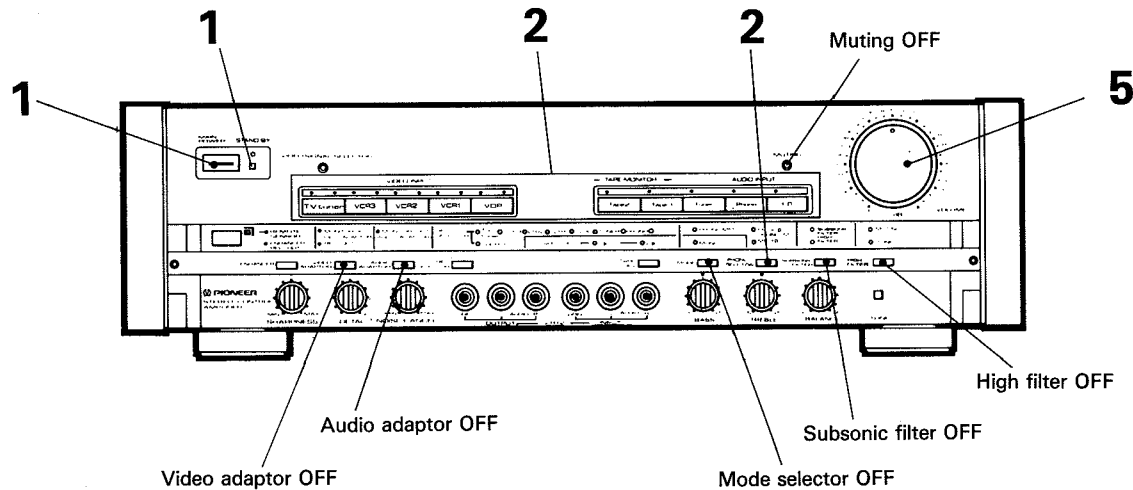
Connect to a household wall outlet, or the power outlet of an audio timer.

About power consumption of power outlets.

Never connect any appliance (e.g. toaster, hair dryer, etc.) with a power consumption greater than the wattage shown on the panel. Fire or damage to components could result.

OPERATIONS 1 (Basic Operation)

To play back a connected component.



1 Turn on the power to the C-90 and to your power amplifier.

If your power amplifier has an input selector, set it to amplify the signal from the C-90.

2 Set the audio input selector switch or the video input selector switch to the component to be played back.

[For Audio Components]

Set so that the indicator above the switch lights.

- To listen to FM/AM radio broadcasts
Press [Tuner].
 - To listen to compact discs
Press [CD].
 - To listen to records
Press [Phono].
- Set the cartridge selector switch to the type of cartridge used (MM, MC 40 Ω , MC 3 Ω).

- To play back tape deck 1
Press [Tape 1].
- To play back tape deck 2
Press [Tape 2].

[For video components]

Set so that both indicators (red, green) above the switch light.

- For video disc playback
Press [VDP].
- For VCR 1 playback
Press [VCR 1].
- For VCR 2 playback
Press [VCR 2].
- For VCR 3 playback
Press [VCR 3].
- To use the TV tuner
Press [TV Tuner].

NOTE:

- When playing back components other than tape deck 1 or tape deck 2, set [Tape 1] and [Tape 2] to the OFF position (indicators go out).
- When playing back tape deck 1, set [Tape 2] to OFF.

3 Turn on the power to the components to be used.

When playing back a video component, also turn on the power to your television set or color monitor.

4 Operate the playback component to begin playback.

5 Adjust the sound volume with the volume control.

SUBSONIC FILTER

In the event of low-frequency noise arising from such causes as record warp, set the subsonic filter to the ON position. A 7 Hz filter will be applied to cut out the unwanted low-frequency noise.

HIGH FILTER

In the event that high-range sounds of the playback are too strong, set the high filter to the ON position. A 10 kHz filter will be applied to attenuate the high-range emphasis.

TONE CONTROL

To adjust the tone of the playback sound, press the TONE switch so that the TONE indicator lights. Then use the BASS, TREBLE controls to adjust the tone as desired.

VIDEO ADAPTOR/AUDIO ADAPTOR

Be sure to set this adaptor to the OFF position when not using adaptor equipment.

Audio tape recording

To record the sound you are presently listening to

By setting the recording selector to SOURCE, and operating the tape deck for recording when listening to the sound from FM/AM broadcasts, records, compact discs, or the audio channel from VDP, VCR 1, VCR 2, VCR 3, and TV TUNER, these sources can be recorded on the tape deck.

(See your tape deck's operating instructions for information on tape recording.)

Tape copying

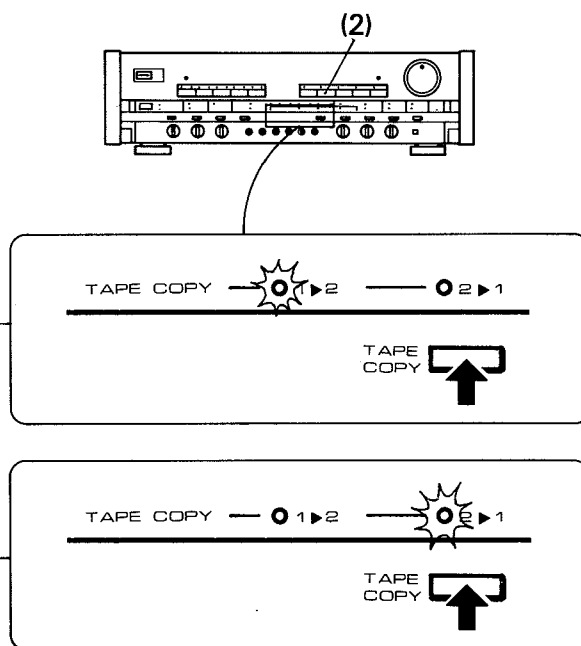
When two tape decks are used, a prerecorded tape can be played on one deck and copied onto the tape in the other deck.

Recording from tape deck 1 to tape deck 2

- (1) Load a prerecorded tape into tape deck 1, and a tape for recording into tape deck 2.
- (2) Press the TAPE COPY switch so that the 1►2 indicator lights.
- (3) Set tape deck 1 to the playback, and tape deck 2 to the recording mode.

Recording from tape deck 2 to tape deck 1

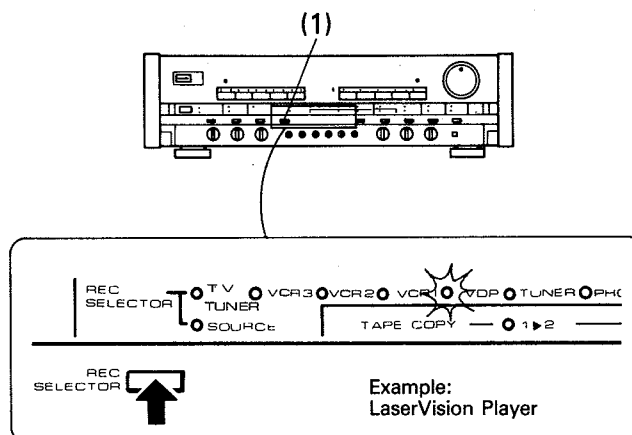
- (1) Load a prerecorded tape into tape deck 2, and a tape for recording into tape deck 1.
- (2) Press the TAPE COPY switch so that the 2►1 indicator lights.
- (3) Set tape deck 2 to the playback, and tape deck 1 to the recording mode.



Video/Audio recording onto a video tape

- (1) Press the RECORDING SELECTOR switch to select the playback component. If the recording selector is set to SOURCE, the signal selected with the input selector switch will be output to each VCR terminal.
- (2) Load a video tape for recording into the VCR unit to be used for video/audio recording.
- (3) Operate the playback component to begin playback, and set the VCR to the recording mode.

Copying of a prerecorded video tape can be performed by loading the prerecorded tape into the playback VCR and selecting that component with the REC SELECTOR switch, and by using another VCR for recording.

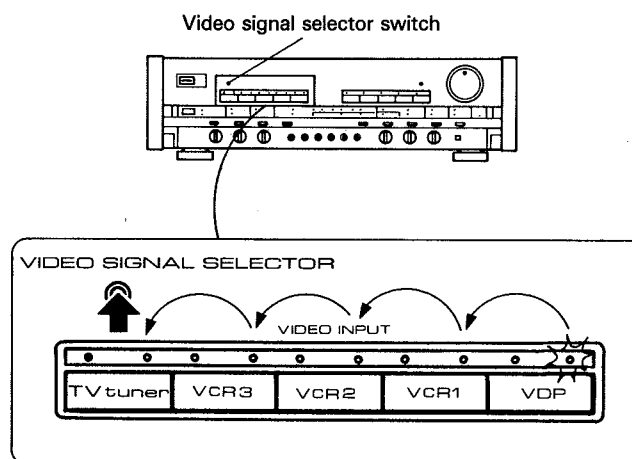


Using the video signal selector switch

- Press the VIDEO SIGNAL SELECTOR switch so that the green indicator lights above the desired playback component.
- The video signal selector operates in the order VDP → VCR 1 → VCR 2 → VCR 3 → TV TUNER → OFF → VDP ...

NOTE:

Whenever using this switch, set your VCR to the pause mode. If the video signal selector is switched during video recording (when tape is running), the recorded picture and sound may be temporarily disrupted at the time of switching (this depends on the VCR used).



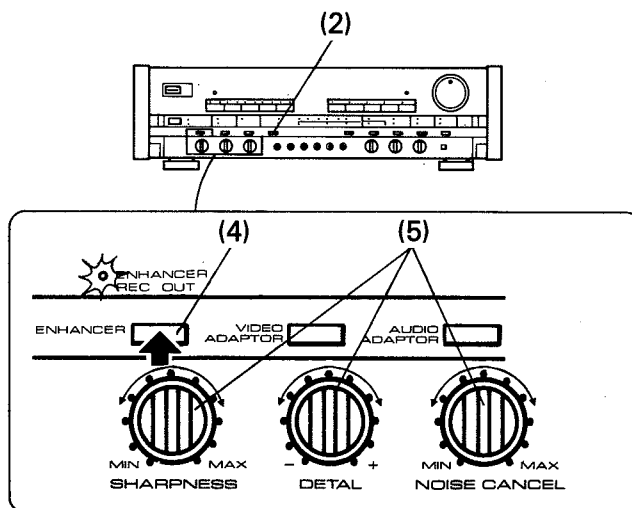
Monitoring and compensating video recordings:

By connecting a color monitor to the rear panel REC MONITOR terminals, you can view the image currently being recorded.

Also, if the playback picture quality is poor, the image can be compensated by using the C-90's built-in enhancer, and the resulting image recorded.

[Operation]

- (1) Turn on the power to the color monitor connected to the REC MONITOR terminals.
- (2) Select the playback component with the recording selector switch.
- (3) Operate the playback component to begin playback.
- (4) Press the enhancer switch so that the ENHANCER indicator lights.
- (5) Use the picture quality controls (SHARPNESS, DETAIL, NOISE CANCEL) to adjust the picture seen on the color monitor to its optimum condition.
- (6) Load a non-recorded video tape in the recording VCR, and begin recording.



OPERATIONS 2 (Applications)

Superimposing picture and sound from video components and personal computer.

When the Pioneer personal computer PX-7 is connected to the C-90, sounds and images produced on the PX-7 can be superimposed with images played back from video components.

[Operations performed on the C-90]

- (1) Set the input selector switch to the playback video component you wish to use.
- (2) Set the video adaptor switch to ON (MONITOR OUT).
- (3) Set the audio adaptor switch to ON.

[Operations performed on the PX-7]

When the screen selector key is pressed, the following screens will appear:

SUPERIMPOSE:

The component selected with the C-90 will be superimposed with the pictures and sound produced on the PX-7.

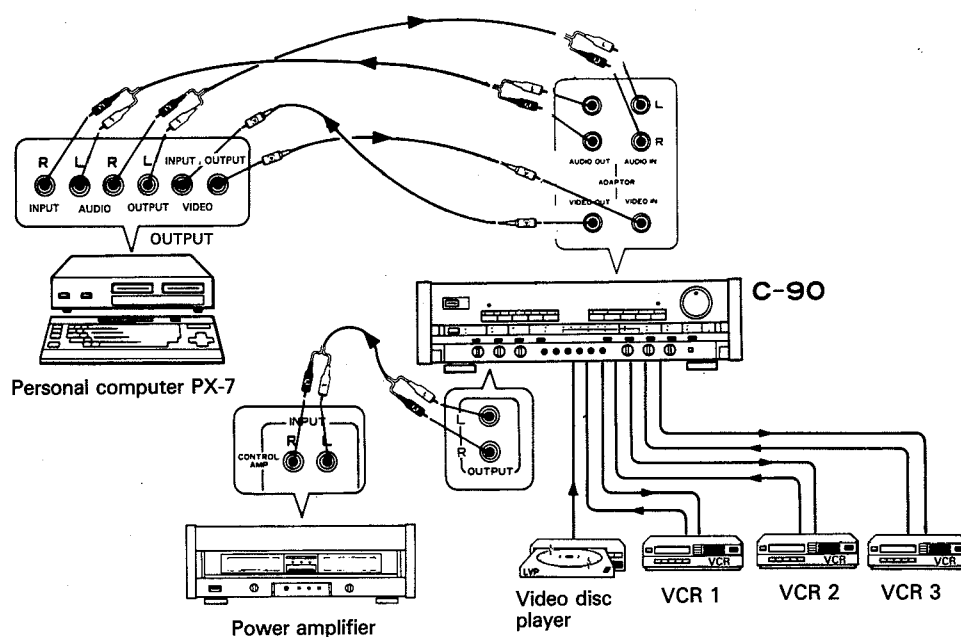
VIDEO:

The picture and sound of the component selected with the C-90 will be played back.

COMPUTER:

The image and sound produced with the PX-7 will be played back.

[Connection]



PCM recording and playback

By connecting a PCM processor, you can use the video tapes played on your video cassette recorder to perform PCM digital sound recording and playback for extremely high sound quality.

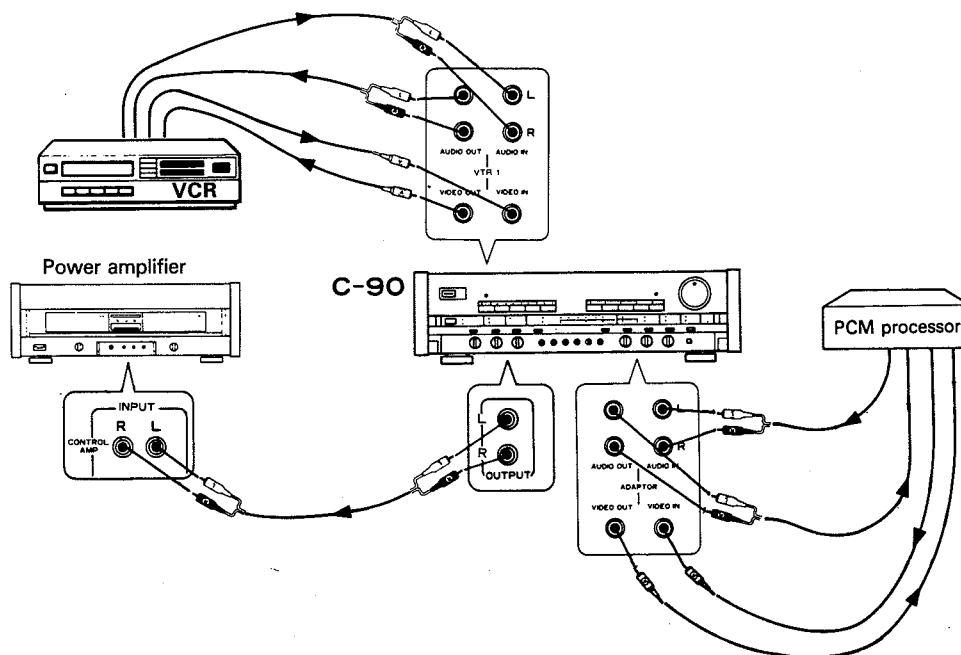
[Operation of this unit for recording]

- (1) Using the audio (AUDIO INPUT) or video (VIDEO INPUT) input select switch, select the source to be recorded. (You cannot make a PCM recording of a source connected to the TAPE 2 AUDIO INPUT.)
- (2) Set the video adaptor switch to ON (the REC OUT indicator will light).
- (3) Set the video cassette recorder to the recording mode.

[Operation of this unit for playback]

- (1) Using the video (VIDEO INPUT) input select switch, select the VTR in which the recorded tape is loaded.
- (2) Set the audio adaptor switch (AUDIO ADAPTOR) to ON.
- (3) Set the video adaptor switch to ON (the MONITOR OUT indicator will light).

[Connection]



Expansion to a surround system

Normal stereo playback is based on three-dimensional sound from the front (speakers) direction only. In fact, however, when listening to an actual live concert at a concert hall or theater, sound is heard not only from the front, but it envelops the body from all sides, reverberating off the high ceiling and wide wall area. Such sound qualities form elements of the sense of "presence" and "spatial breadth" felt at such live concerts. The surround system is a means of reproducing this sense of presence and breadth.

[C-90 Operations]

- (1) Set the input selector switch to the playback component.
- (2) Set the audio adaptor switch to ON.

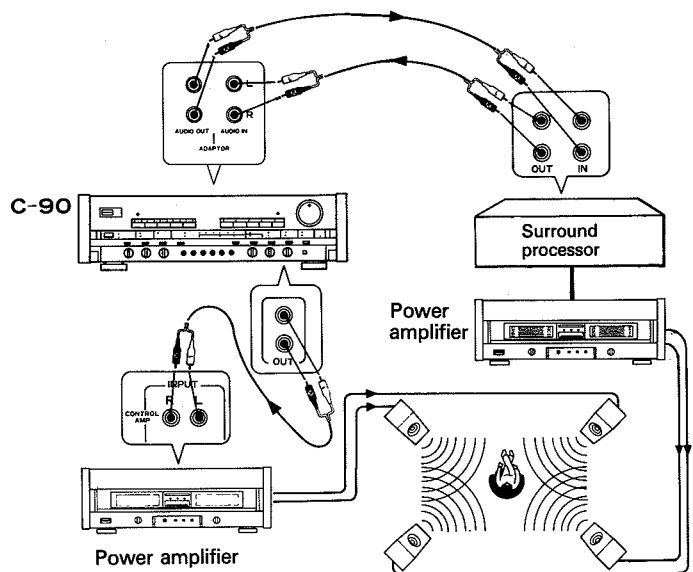
[Surround processor operations]

Refer to the Operating Instructions for the surround processor used.

NOTE:

When using the surround processor, set the INPUT LEVEL switch to the [0.15 V] position.

[Connections]



System control

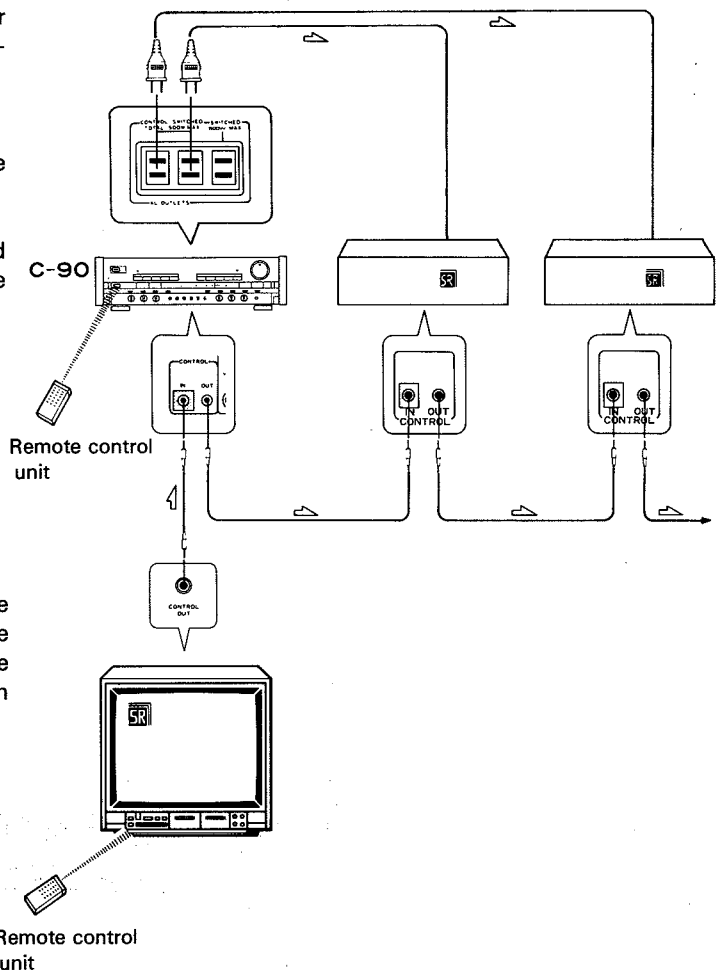
Unified system control can be performed when using Pioneer components equipped with control input terminals, and bearing the SR mark.

[Connections]

Connect the control input and output terminals in order. Be sure to connect properly, since system control cannot be performed when video or audio cables are not connected.

[Operation]

The remote control unit furnished with the C-90 can be used to perform remote control of the major functions of the control-connected components.

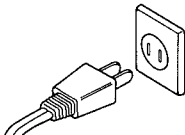
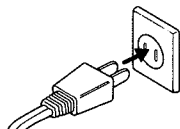
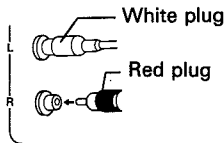
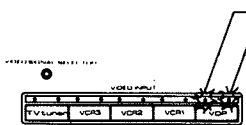


When the television's CONTROL OUT is connected to the amplifier's CONTROL IN, point the remote control unit at the remote sensor on the television set when performing remote operations. Be sure that the television set's main power switch is ON.

TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used.

If the trouble cannot be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

Symptom	Probable Cause	Remedy	
No power	• Power plug is disconnected from outlet 	• Connect plug securely into power outlet. 	
	• If the power plug is connected to the switched auxiliary outlet of another component, the power is turned OFF to the other component.	• Turn on the power to the other component.	
No sound	• A short pin plug is connected to the REC, AUDIO OUT terminal. • Connection cords are disconnected from terminals, or connected incorrectly. 	• Remove short pin plug. • Connect cords securely 	
	• Terminals and/or connecting cord plugs are dirty • The audio adaptor switch is set incorrectly • The muting switch is set to ON.	• Clean plugs and terminals • Set to ON when using an adaptor component, and OFF at all other times. • Set to OFF.	
	(For tape playback)	• Tape deck is being operated incorrectly.	• Consult the operating instructions for the tape deck used.
	(In other cases)	• The input selector switch is not set to the playback component. • Other components are being operated incorrectly.	• Set the switch correctly. • Consult the operating instructions for the other components.
No picture	• A short pin plug is connected to the VIDEO OUT terminal. • Connection cords are disconnected from terminals, or connected incorrectly. 	• Remove short pin plug. • Connect correctly and securely. 	
	• Terminals and connection cord pin-plugs are dirty. • Input selector switch or video signal selector switch is not set to the playback component. • The video adaptor switch is set incorrectly. • Other components are being operated incorrectly.	• Clean terminals and pin-plugs. • Set switches correctly.  The indicator for the playback component should light.	
No sound from one speaker.	• Connection cords are disconnected from one side. • The balance control is set too far to one side.	• Connect cords securely. • Set the control to the center position.	

SPECIFICATIONS

Amplifier section

Rated power	
20 Hz—20 kHz, 0.01%	8 V
Harmonic distortion	
20 Hz—20 kHz, 1 V	0.002%
Cross modulation distortion	
(50 Hz: 7 kHz = 4 : 1, 1 V)	0.002%
Input terminals (sensitivity/impedance)	
PHONO MM	2.5 mV/50 k Ω
PHONO MC	250 μ V/40 Ω
	125 μ V/3 Ω
TUNER, CD, TAPE PLAY, ADAPTOR	150 mV/50 k Ω
Output terminals (output level/output impedance)	
TAPE REC	150 mV/1 k Ω
PRE OUT	1 V/600 Ω
Frequency response	
PHONO MM 20 Hz—20 kHz	$\pm$ 0.2 dB
TUNER, CD, AUX, 20 Hz—20 kHz	+ 0 dB
	-0.1 dB
Tone control	
BASS	$\pm$ 9 dB, 100 Hz
TREBLE	$\pm$ 9 dB, 10 kHz
Filter	
LOW (SUBSONIC)	7 Hz, 6 dB/oct
HIGH	10 kHz, 6 dB/oct
MUTING	-20 dB
SN ratio (short-circuit, A network)	
PHONO MM	96 dB
PHONO MC	86 dB
TUNER, CD, TAPE PLAY, ADAPTOR	109 dB

Video section

Video (Base Band)	
Input terminals (sensitivity/impedance)	
VDP, VCR 1, 2, 3, ADAPTOR, TV TUNER	
.....	1 Vp-p/75 Ω unbalanced
Output terminals (Output level/impedance)	
VCR 1, 2, 3, ADAPTOR, REC MONITOR	
.....	1 Vp-p/75 Ω unbalanced
DG	2%
DP	2°
Frequency response 10 Hz — 10 MHz	+ 0 dB
	-3 dB
Noise level	-60 dB or less
Sharpness 2 MHz	+ 6 dB
Detail 0.5 MHz	$\pm$ 3 dB
Maximum input level	2 Vp-p

Power section, other

Power requirements	
U.S. model	AC 120 V, 60 Hz
Other models	$\sim$ AC 110 V/120 V/220 V/240 V
	(switchable), 50/60 Hz
Power consumption	
U.S. model	40 W
Other models	40 W
AC outlets	
Power switch linked	500 W
Power switch linked (x 2: remote control lable)	
.....	500 W
External dimensions	457(W) x 405(D) x 125(H) mm
	18 (W) x 16 (D) x 5 (H) in
Weight	9.7 kg
	(21 lb 6 oz)

Accessories

Remote control unit	1
Batteries (R03/UM-4)	2
Pin-plug cord	1
Operating Instructions	1

The specifications and appearance noted above are subject to change without notice due to improvements.

INFORMATION TO USER [FOR U.S. MODEL]

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this equipment with respect to the receiver
- move this equipment away from the receiver
- plug this equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

The above instructions apply only to units which will be operated in the United States.

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